

[019] In one embodiment consistent with the principles of the present invention, camera 120 sends the image to a pattern recognition device 125, which performs an optical character reading (OCR) function or handwriting recognition (HWR) function. The OCR/HWR function uses the characters of the destination address to determine a delivery point for mail item 100, such as a name and a Zip-plus-four-plus-two code. The OCR/HWR function also determines who the sender is by reading the return address. If mail item 100 does not already include an automatic identification tag, then an auto ID application device 115 places an automatic identification tag on mail item 100. The automatic identification tag may be, for example, a bar code, data matrix code, or radio-frequency identification device.

[020] At about the same time, pattern recognition device 125 creates a database entry, indexed by the identification tag number, that includes a recipient information section 130 and a sender information section 135. Recipient information section 130 contains information such as the delivery point, the recipient's name, and notification channels for communicating with the recipient, such as the recipient's phone number and email address. Mailer information section 135 contains information such as the return address, the sender's name, notification channels for communicating with the sender, such as the sender's phone number and email address, and a scheduled delivery date for mail item 100. The database entry may also include other information about mail item 100, such as its size, its weight, and an image of mail item 100 taken by camera 120. The database entries may be stored in a database 137 maintained by a computer system 138. Various

implementations for database 137 and computer system 138 are known to those skilled in the art, and thus need not be described in detail here.

[021] In another embodiment consistent with the principles of the present invention, the OCR and identification tag application functions are not necessary because the sender has already placed an identification tag on mail item 100. In this embodiment, camera 120 takes an image of the identification tag on mail item 100 and pattern recognition device 125 performs a bar code reader (BCR) function to discern the identification number. Pattern recognition device 125 uses the identification number to index to a database entry containing information concerning mail item 100, such as the delivery point, recipient, return address, and other information as just described. Obtaining this information using a database lookup function is much quicker and more accurate than using OCR for determining address and other information.

[022] In another embodiment consistent with the principles of the present invention, a unique identification tag is not required for mail item 100. Instead, the delivery point address represented, for example, as a Zip-plus-four-plus-two Code, and the return address, represented as a Zip-plus-four-plus-two Code, are used as database indices for mail item 100. The mailing date and time may also be used to help uniquely identify mail item 100's entry in the database.

[023] Populating the Database

[024] Once mail item 100 has a unique identification tag, or is otherwise identified, the identity of mail item 100 is used to access a database entry containing information about mail item 100, as described above. The database information

may come from various sources. In one embodiment, information is gathered by the delivery service from mail item 100 itself. For example, sender name, return address, recipient name, and delivery address are gathered by camera 120 and pattern recognition device 125's OCR function. Mail item 100's weight and size may be gathered by automatically weighing and measuring it. In short, any characteristic discernable from an external inspection of mail item 100 can be gathered by the delivery service and put into the database.

[025] If the sender gives mail item 100 a unique identity, (for example by affixing an identification tag), the sender may use a mailer plant 140 to create mail and supply a database containing all the information than can be gathered from an external inspection, plus additional information about mail item 100. For example, the sender can supply additional information about the contents of mail item 100 from mailer plant 140, its value, notification information for the sender (e.g., the recipient's email address and phone number), and notification information for the recipient (e.g. the sender's email address and phone number as supplied when the recipient ordered mail item 100). The sender can easily transfer this database to the delivery service when a batch of items, such as mail item 100, are shipped.

[026] In another embodiment consistent with the principles of the present invention, the delivery service builds and maintains a secure, static database of information associated with each delivery point to which it delivers to. The static database is indexed by delivery point, such as Zip-plus-four-plus-two Code and contains, for example, the names of the different persons residing at that delivery point, and notification contact information for each, such as email address and